Novel Polarimetric SAR Interferometry Algorithms, Phase II

Completed Technology Project (2004 - 2006)

Project Introduction

Polarimetric SAR interferometry (PolInSAR) is a recently developed synthetic aperture radar (SAR) imaging mode that combines the capabilities of radar polarimetry and interferometry, as well as adding new capability from a synthesis of the two techniques. PolInSAR holds the promise of being able to provide unique data that can be of great value to the earth science community. By observing scattering volumes such as vegetation canopies, ice sheets, and dry soils using this new SAR technique, one can obtain and decompose scattering from within that volume. In traditional SAR imaging, all scattering that arises from within a three-dimensional resolution cell of the volume is collapsed into a single pixel value due to the layover effect. PolInSAR provides a method of separating the various scattering center locations based on their polarimetric properties. PolInSAR techniques, therefore, can address many issues of interest to the vegetation and environmental community, providing measurements of foliage structure and density, and potentially contribute directly to our understanding of the carbon cycle budget.

Primary U.S. Work Locations and Key Partners

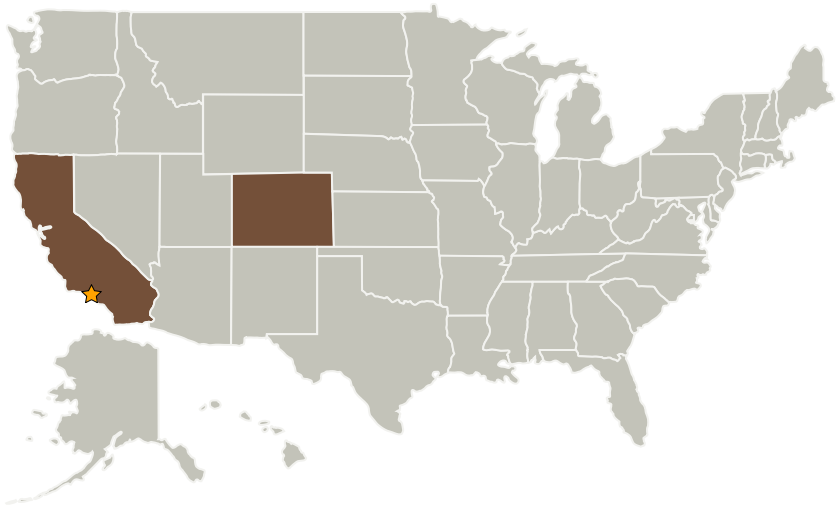

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Table of Contents

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Jet Propulsion Laboratory (JPL)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Jet Propulsion Laboratory(JPL)	Lead Organization	NASA Center	Pasadena, California
Vexcel Corp	Supporting Organization	Industry	Boulder, Colorado

Primary U.S. Work Locations	
California	Colorado

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.1 Remote Sensing Instruments/Sensors
    - TX08.1.4 Microwave, Millimeter-, and Submillimeter-Waves